

Chapter 4 Functions

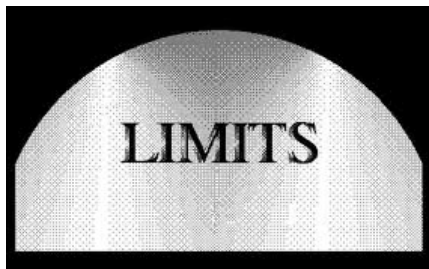
4.3 Linear Function Patterns

Unit Question:

How do we function within the limits we have?

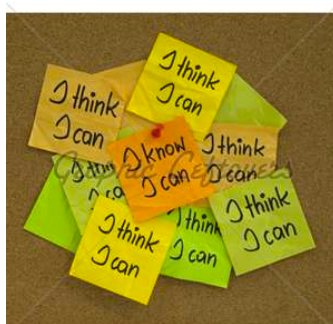
Learner Profile: Communicator

Area of Interaction: Environments



I Can Statement:

I can use a linear function to describe a linear pattern.



Linear Function:

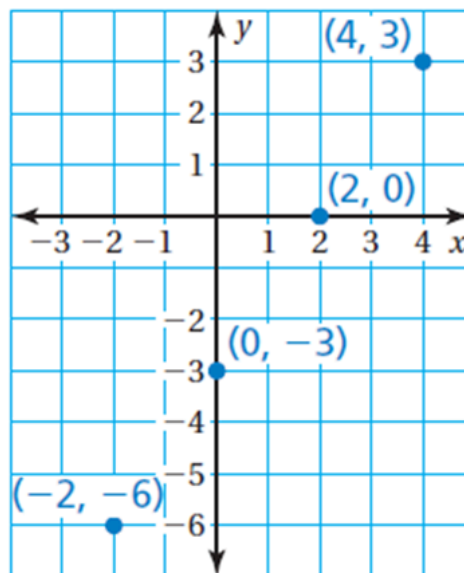
A function whose graph is a line.

Finding a Linear Function Using a Graph

Use the graph to write a linear function that relates y to x .

What information do you need to write a linear function?

$$y = \frac{3}{2}x - 3$$

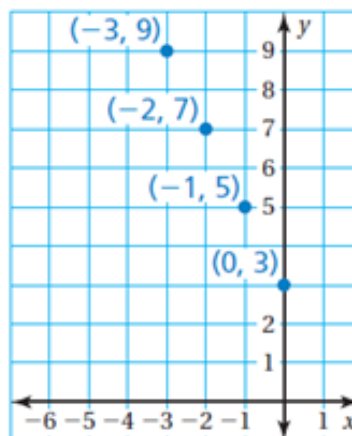


Finding a Linear Function Using a Table

Use the table to write a linear function that relates y to x .

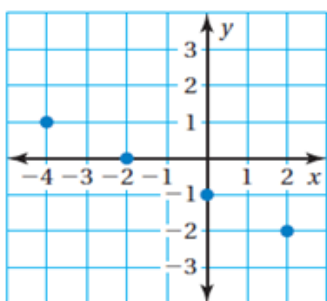
x	-3	-2	-1	0
y	9	7	5	3

$$\frac{3-5}{0-1} = -2 \quad y = -2x + 3$$



More Examples: Use the graph or table to write a linear function that relates y to x .

1.



$$y = -\frac{1}{2}x - 1$$

$$y = -\frac{1}{2}x - 1$$

2.

x	-2	-1	0	1
y	2	2	2	2

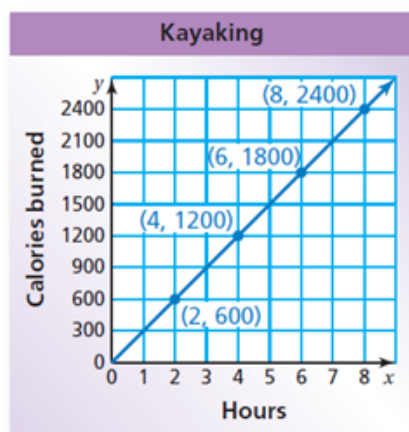
$$y = 2$$

Real-Life Application

Graph the data in the table.

- Is the domain discrete or continuous?
- Write a linear function that relates y to x .
- How many calories do you burn in 4.5 hours?

Hours Kayaking, x	Calories Burned, y
2	600
4	1200
6	1800
8	2400



a. Plot the points. Time can represent any value greater than or equal to 0, so the domain is continuous. Draw a line through the points.

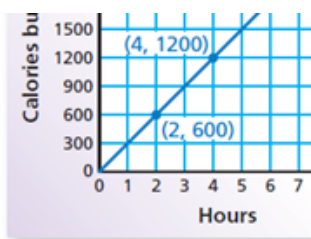
b. The slope is $\frac{600}{2} = 300$ and the y -intercept is 0.

❖ So, the linear function is $y = 300x$.

c. Find the value of y when $x = 4.5$.

$$\begin{aligned}
 y &= 300x && \text{Write the equation.} \\
 &= 300(4.5) && \text{Substitute 4.5 for } x. \\
 &= 1350 && \text{Multiply.}
 \end{aligned}$$

❖ You burn 1350 calories in 4.5 hours of kayaking.



Summary

Representing a Function

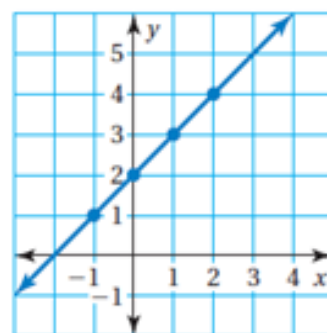
Words An output is 2 more than the input.

Equation $y = x + 2$

Input-Output Table

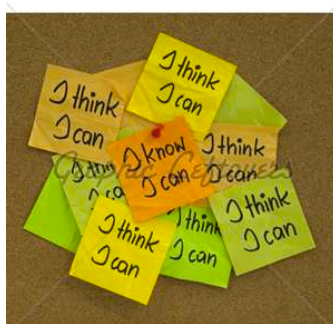
Input, x	-1	0	1	2
Output, y	1	2	3	4

Graph



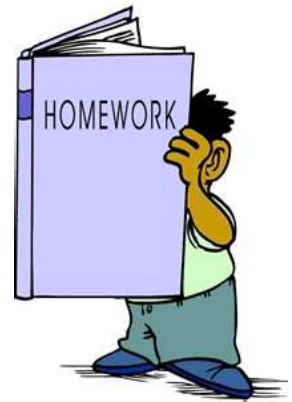
I Can Statement:

I can use a linear function to describe a linear pattern.



Assignment:

p. 166-167 #1-14
Due tomorrow at the
beginning of class!!



4.1 - 4.2 Reflection
MCAP Reflection

Due Thursday